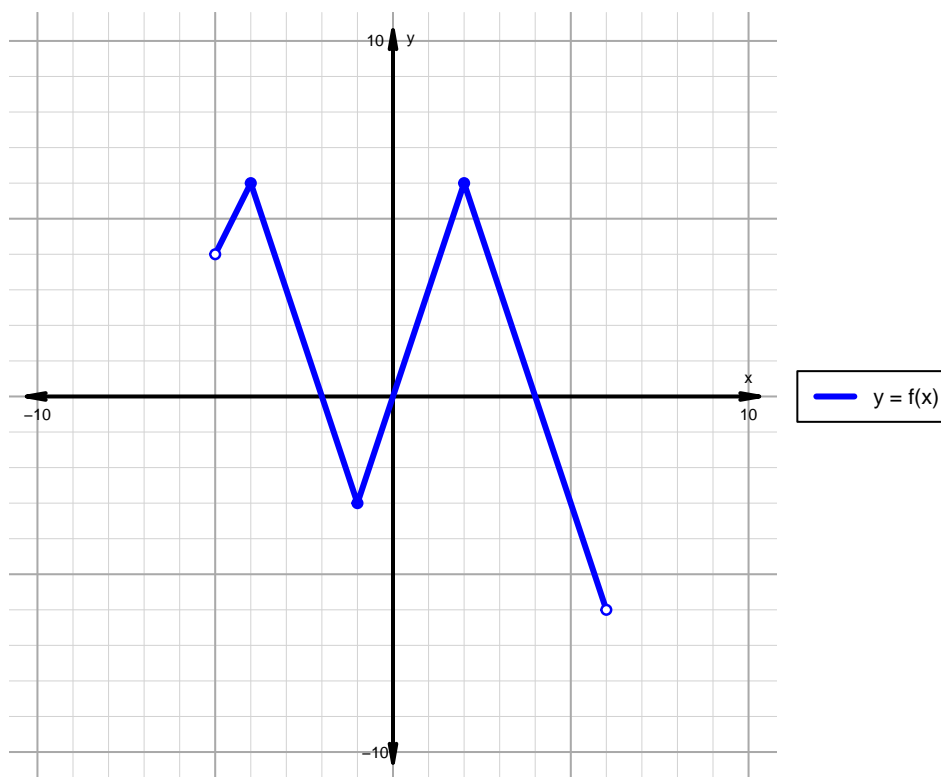# Intervals, Transformations, and Slope Solution (version 90)

1. The function f is graphed below.

Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-5, -2) \cup (0, 4)$
Negative	$(-2, 0) \cup (4, 6)$
Increasing	$(-5, -4) \cup (-1, 2)$
Decreasing	$(-4, -1) \cup (2, 6)$
Domain	$(-5, 6)$
Range	$(-6, 6)$

Intervals, Transformations, and Slope Solution (version 90)
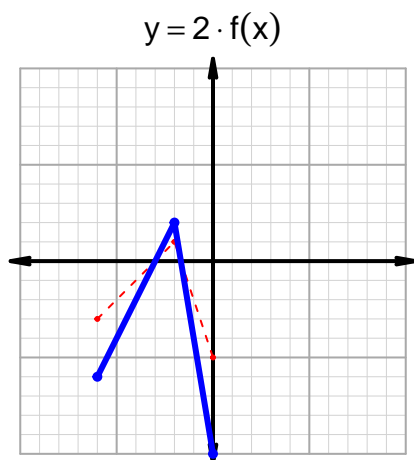
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$$y = 2 \cdot f(x)$$

$$y = f(-2 \cdot x)$$

$$y = f(x) + 2$$

$$y = f(x - 2)$$
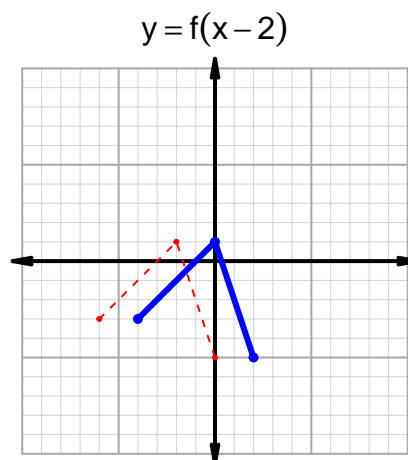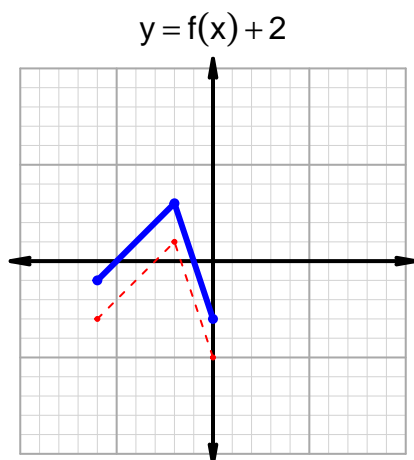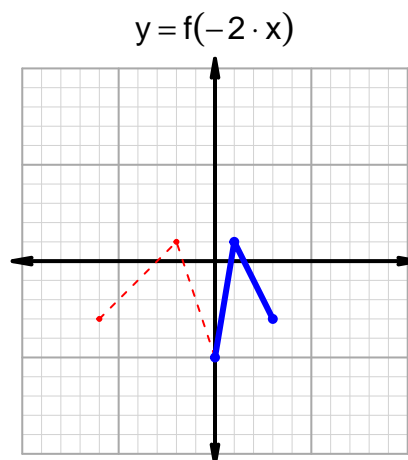
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 25$ and $x_2 = 65$. Express your answer as a reduced fraction.

x	$g(x)$
6	25
25	70
65	6
70	65

$\frac{g(65) - g(25)}{65 - 25} = \frac{6 - 70}{65 - 25} = \frac{-64}{40}$

The greatest common factor of -64 and 40 is 8. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-8}{5}$$